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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,428	11/29/2000	Gunter Krodel	A33676 PCT USA A	9507

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BAKER & BOTTS  
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NEW YORK, NY 10112

EXAMINER
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NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 09/03/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/725,428

Applicant(s)

KRODEL ET AL.

Examiner

Ngoc-Yen M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 28, 2003 has been entered.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossin et al (6,069,291) in view of Kisters et al (4,229,411) and Tom et al (6,030,591).

Rossin '291 discloses a process for the decomposition of perfluoroalkanes to HF and CO<sub>2</sub> by contacting, in the presence of oxygen, the perfluoroalkanes with a catalyst (note claim 1). Rossin '291 further discloses that after the gas stream containing perfluoroalkane has been treated, further treatment may be necessary to remove hydrofluoric acid from the effluent stream. If the concentration of hydrofluoric acid in the effluent stream is deemed unacceptable, conventional collection or abatement

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processes, such as caustic scrubbing, may be employed to avoid venting acid gases directly into the atmosphere (note column 5, lines 38-47).

Rossin '291 teaches that the gas stream temperature and flow rate and rate of perfluoroalkanes injection, may be controlled to achieve the desired concentration of perfluoroalkanes to be treated (note column 5, lines 33-36). Also, the effluent stream was sampled for the concentration of carbon dioxide and  $C_2F_6$  as discrete periods of time (note column 10, lines 20-22).

The differences are Rossin '291 does not disclose (1) the step of controlling the scrubbing condition by monitoring the amount of harmful substances in the effluent gas before and after the scrubbing step and (2) the decomposing step is carried in a combustion chamber having a combustible gas.

For (1), Kister '411 discloses a process and apparatus for the removal by absorption of noxious compounds from waste gases (note column 1, lines 10-11). Kister '411 discloses a continuous and automatic measurement of the concentration of the components in the gas and causing the amount of neutralizing agent to become adjusted automatically and continuously dependent on these measurements of the gas concentration so as to always have present the stoichiometric amount of neutralizing agent in the gas (note last paragraph of column 1). Preferably, the concentration of pollutants is measured at several places, preferably prior and directly behind the absorber and after discharge from a filter arranged behind the absorber (note column 2, lines 1-4). All these measuring devices may be connected to a central control arrangement.

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Since in both Rossin '291 and Kister '411, caustic solution is used to remove the acidic pollutant in the effluent gases, thus, when the amount of caustic solution is controlled, the pH would also be controlled.

Kister '411 does not specifically disclose the type of the measuring devices, however, it would have been obvious to one of ordinary skill in the art to use any known and commercially available means to effectively measuring the amount of the pollutants in the waste gases, therefore, without a showing of criticality or unexpected results, the use of optical spectroscopy or any other known device is not seen as a patentable difference.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the control method as suggested by Kisters '411 for the scrubbing step of Rossin '291 because such control method would automatically control the amount of neutralizing agent (e.g., caustic solution) for the scrubbing step.

For (2), in Rossin '291 the process is to decompose perfluoroalkanes, in the presence of oxygen to produce HF and CO<sub>2</sub> at high temperature (note claim 1). However, Rossin '291 does not specifically disclose how the heat is supplied. There are only two ways to supply heat the process of Rossin '291, either by direct heating or indirect heating. The use of either one would have been well within the skill of the artisan.

Tom '591 is applied to show that it is conventional in the art to use direct heating, i.e., by incinerating, as an effective means of destroying halocarbons, including PFCs.

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The reaction of the incineration method as disclosed in Tom '591 produces CO<sub>2</sub> and HF just like in the process of Rossin '291.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incineration method to carried out the process of Rossin '291 to raise the process temperature by direct heating because such process is known and conventional in the art as shown by Tom '591.

Applicant's arguments filed July 28, 2003 have been fully considered but they are not persuasive.

Applicants argue that Rossin et al. describes a very specific process for the catalytic decomposition of perfluoroalkanes with aluminum oxide and in contrast, Applicants' claim 1 specified that the waste gases are introduced into a combustion chamber with combustion gases and oxygen.

Even though that the process of Rossin is a catalytic decomposition process, however, the process of Rossin still requires a high temperature. It would have been obvious to one of ordinary skill in the art to select either direct (this would involves a combustion chamber) or indirect (e.g., an electrical heater) to raise the temperature in the process of Rossin. As suggested by Tom '591, as stated in the above rejection, when using direct heating such as an incinerator for the process of Rossin, the process temperature can be raised and the same products, i.e., CO<sub>2</sub> and HF, can be produced.

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Applicants argue that the claimed invention, unlike Kisters, is not directed at an absorptive removal of pollutants of waste gases but is directed at gas analyses of all components of the waste gas.

Kisters is relied upon to teach that it is important to monitor the concentration of the harmful substances in the exhaust gas after the waste gases have been treated in order to adjust the amount of neutralizing agent needed. Thus, Kisters fairly suggests to one of ordinary skill in the art to use the feed-back control method to adjust the process conditions in order to obtain the best results while minimize the cost.

Applicants argue that Kisters is directed at the removal of pollutants for waste gases as a result of the combustion of industrial or domestic wastes.

Again, Applicants' claims do not limit to any type of waste gases and Kisters is relied upon to teach the "feed-back" control method, not for the source of the waste gases.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (703) 308-2536. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (703) 308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn  
August 25, 2003